AN ECONOMIC ANALYSIS OF PRODUCTION OF SOYBEAN IN RAJNANDGAON DISTRICT OF CHHATTISGARH

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Abstract: The present study was conducted in the Rajnandgaon districts of Chhattisgarh. Sixty farmers were selected randomly from three villages namely Ghumka, Botepar and Gidhwa. The primary data were collected for the year 2006-07. The major findings of this study revealed that the average size of holding of the sample households was 3.34 hectares. Production performance of soybean (during 1991-92 to 2006-07) was observed positive and significant growth in Rajnandgaon district as well as Chhattisgarh state. This was mainly due to positive and significant growth in area and production of soybean. Soybean and paddy were the major crops in the study area. On an average the cost of production of soybean calculated as Rs.777.76. Cost of production per quintal of soybean shows decreasing trend with increase in farm size where as cost of cultivation increase with increase in the farm size. Per hectare soybean production and input-output ratio increases with increase in farm size.

Keywords: Production, Economics, Soybean

INTRODUCTION

In Chhattisgarh concern soybean is the emerging crop it is grown in area about 80.78 thousand hectares. Most of the area of soybean in Chhattisgarh comes under the Rajnandgaon (38 percent), Durg (31.5 percent) and Kabirdham (22 percent). These three districts account more than 90 per cent to the total cropped area under soybean. Keeping in view the economic important of soybean in the study area, the present enquiry related to its production was undertaken in Rajnandgaon district of Chhattisgarh. The finding of present enquiry would be great significance to the policy makers. Economists and extension workers in developing such policies of production and marketing of soybean so that its profitability may be enhanced substantially, soybean is emerging crop in Chhattisgarh and the economic aspects of soybean production and marketing are not adequately known to narrow down the gap. The present study was undertaken in the soybean growing area of Chhattisgarh, block with following specific objectives.

To analyse the growth in area, production and productivity of soybean in Rajnandgaon district and Chhattisgarh state.
To work out the economics of production and profitability of soybean on the sample households at different sizes.

MATERIAL AND METHOD

The present study was conducted in Rajnandgaon district of Chhattisgarh. Sixty farmers were selected randomly from three villages namely Ghumka, Gidhva and Botepar. The primary data were collected for the year 2006-07. Primary data were related to cost and return of major crops, in general and soybean crop in particular. The data were collected from the respondents by using well designed questionnaires and schedules. The secondary data regarding the area, production and productivity of soybean in Rajnandgaon district and Chhattisgarh state were collected from Agriculture Statistics, Directorate of Agriculture Madhya Pradesh and Chhattisgarh. To work out the status of soybean in Chhattisgarh trend analysis was done, to work out the cost of cultivation the standard method of cost of cultivation was adopted.

RESULT AND DISCUSSION
Growth in area, production and productivity of soybean:

The production of soybean increased from 2.84 thousand tonnes in 1991-92 to 42.21 thousand tonnes in 2006-07, registering a significant growth rate of 22.03 per cent per annum in Rajnandgaon district (Table 1). Of these increase in production the major share attributable to the significant growth in productivity. The area under soybean crop in Rajnandgaon district increased from 4.375 thousand hectares in 1991-92 to 36.87 thousand hectares in 2006-07 registered significant growth of 24.31 per cent, and similar trend was observed in area, production and productivity of soybean in Chhattisgarh state.

Table 1: Compound Growth Rate of area, production and productivity of soybean in Rajnandgaon district and Chhattisgarh state

Districts/State	Period 1991-92 to 2006-07
Rajnandgaon district a. Area b. Production c. Productivity	24.31 % ** 22.03 % * 1.39 % *
Chhattisgarh state a. Area b. Production c. Productivity	18.19 % * 21.84 % * 0.34 %

Note: * - Significant at 1 % level of probability

** - Significant at 5 % level of probability

Economics of soybean crop production:

Table 2 clearly shows that the cost of cultivation per hectare of soybean was higher on large farms as compare to small farms. It was due to the fact that the large farmers could incurred more expenditure on modern farm inputs like quality seed, fertilizer, plant protection material, hired labour etc. as a result of borrowing from different credit institutions and better economic status. The higher expenditure returns into higher yield and returns on these farms as compare to others. The average cost of cultivation per hectare of soybean came to Rs.7669.95. The cost of cultivation per hectare showed a rising trend with the rise in the size of fars.

Table 2: Economics of soybean crop on different size groups of farms

(Rs./ha)

S. No.	Particulars	Farm size			Average
		Small	Medium	Large	
1.	Family human labour	972.33 (13.78)	974.22 (13.45)	194.42 (2.32)	713.66 (9.30)
2.	Hired human labour	977.27 (13.85)	1088.05 (15.02)	1597.19 (18.32)	1220.84 (15.92)
3.	Total human labour	1949.60 (27.63)	2062.27 (28.47)	1791.61 (20.58)	1934.49 (25.22)
4.	Bullock labour	1348.42 (19.11)	-	-	449.47 (5.86)
5.	Tractor power	751.47 (10.65)	1710.41 (23.61)	2563.18 (29.40)	1675.02 (21.84)
6.	Seed cost	1952.07 (17.66)	2092.49 (28.89)	2190.55 (25.13)	2078.38 (27.10)
7.	Plant protection material	186.99 (2.65)	325.98 (4.50)	516.12 (5.92)	343.03 (4.47)
8.	Manure and fertilizer	378.90 (5.37)	551.27 (7.61)	1052.30 (12.07)	660.83 (8.62)
9.	Land revenue	30 (0.43)	30 (0.41)	30 (0.34)	30 (0.39)
10.	Interest on working capital	458.65 (6.50)	470.86 (6.50)	566.69 (6.50)	498.73 (6.50)
	Total input cost	7056.10 (100.00)	7243.28 (100.00)	8710.45 (100.00)	7669.95 (100.00)

Note: Figures in parentheses indicate percent of total input cost

Yield value of output and cost of production per quintal:

The yield, value of output per hectare and cost of production per quintal of soybean on the sample farms have been worked out in table 3. it indicates that the average yield per hectare of soybean come to 9.51 quintals of main product and 17.72 quintal of by-product on the sample farms.

The cost of production per quintal, on an average, was worked out to Rs.777.76 for main product and Rs.15.55 for by-product. It decreased with the

increased in the size of farms due to higher yields in return to the cost of cultivation on the large farms. The average value of output per hectare came to Rs.14796.73. The higher value of output on large farms was associated with the higher expenditure incurred on modern farm inputs.

Table 3: Per hectare yield, value of output and cost of production per quintal of soybean (Rs./ha)

S. No.	Particulars	Farm size			Average
		Small	Medium	Large	
1.	Input cost (Rs.)	7056.10	7243.28	8710.45	7669.95
2.	Production (qtl)				
	a. Main product	8.73	8.96	10.84	9.51
	b. By product	16.07	16.75	20.35	17.72
3.	Value of production (Rs.)				
	a. Main product (@ 1500 Rs./qtl)	13095.00	13440.00	16260.00	14256.00
	b. By product (@ 30 Rs./qtl)	482.2	502.5	610.5	531.73
	Total value of production (Rs.)	13577.2	13942.5	16870.5	14796.73
4.	Cost of production (Rs./qtl)				
	a. Main product	779.55	779.27	774.77	777.76
	b. By product	15.59	15.58	15.49	15.55

Measures of farm profit

Table 4 clearly indicates the values of net income, family labour income and farm business income per hectare on the sample farms of different size groups that, on an average the value of net income, family labour income and farm business income per hectare came to Rs.7126.78, Rs.7840.44 and Rs.8339.17, respectively, on the sample farms of different sizes. The average input-output ratio in soybean came to 1:1.93 on the sample farms.

Table 4: Cost and return of soybean on the sample farms for different group of farms (Rs./ha)

S. No.	Particular	Farm size			Average
		Small	Medium	Large	
1.	Input cost	7056.10	7243.28	8710.45	7669.95
2.	Output value	13577.20	13942.50	16870.50	14796.73
3.	Net income	6521.10	6699.22	8160.05	7126.78
4.	Family labour income	7493.43	7673.44	8354.47	7840.44
5.	Farm business income	7952.08	8144.30	8921.16	8339.17
6.	Input-Output ratio	1:1.92	1:1.93	1:1.94	1:1.93

Cost and returns on the basis of cost concept

The Cost and returns on the basis of cost concept in the production of soybean have been presented in the table 5. It portrays that, on an average cost-A, cost-B and cost-C were worked out to Rs.6956.29, Rs.8706.29 and Rs.9419.94 per hectare, respectively on the sample farms. It is noted that rupees 1750 were considered as imputed rental value of owned land for each crop season. The incomes over different costs were also worked out. The average income over cost-A, cost-B and cost-C were calculated as Rs.7840.44, Rs.6090.44 and Rs.5376.79 per hectare, respectively.

Table 5: Break-up of total cost, cost concept wise income over different cost in soybean (Rs./ha)

S. No.	Particulars	Farm size			Average
		Small	Medium	Large	
A.	Break-up of cost				
	a. Cost A	6083.77	6269.06	8516.03	6956.29
	b. Cost A1	6083.77	6269.06	8516.03	6956.29
	c. Cost B	7833.77	8019.06	10266.03	8706.29
	d. Cost C	8806.10	8993.28	10460.45	9419.94
B.	Income over different cost				

a. Income over cost A	7493.43	7673.44	8354.47	7840.44
b. Income over cost A1	7493.43	7673.44	8354.47	7840.44
c. Income over cost B	5743.43	5923.44	6604.47	6090.44
d. Income over cost C	4771.10	4949.22	6410.05	5376.79

CONCLUSION

The average cropping intensity observed in the study area was 178.35. In the production performance of soybean in period (1991-92 to 2006-07) was observed positive and significant growth. This was mainly due to positive and significant growth in area and production of soybean in Rajnandgaon district as well as in the state of Chhattisgarh. On an average the cost of cultivation per hectare of soybean was calculated Rs.7669.95. The cost of cultivation per hectare showed rising trend with the rise in farm size. On an average input-output ratio of soybean came to 1:1.93 on the sample farms. In case of paddy per hectare cost of cultivation and input-output ratio showed increasing trend as the farm size increases. Processing plant of soybean has to be established in Rajnandgaon district. It will be helpful to the soybean growers to dispose off their produce in better and remunerative price. Which ultimately increase profit of growers.

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